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U S NAVY RESPONSES TO RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL
MANAGEMENT COMMENTS TO REVISED DRAFT FEASIBILITY STUDY SITE 8 NS
NEWPORT RI
12/7/2011
TETRA TECH, NUS



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C-NAVY-12-11-4919W

December 7, 2011

Project Number 112G02124

Ms. Pamela Crump
Rhode Island Department of Environmental Management (RIDEM)
235 Promenade Street
Providence, RI 02908-5767

Reference: CLEAN Contract No. N62470-08-D-1001
Contract Task Order No. WE19

Subject: Navy Responses to RIDEM Comments on the Revised Draft Feasibility Study
Site 8, NUSC Disposal Area, Naval Station Newport, Rhode Island

Dear Ms. Crump:

On behalf of Ms. Maritza Montegross, U.S. Navy NAVFAC MIDLANT, Tetra Tech is pleased to provide responses to RIDEM's comments dated September 19, 2011 on the revised draft Feasibility Study (FS) for Site 8 at the Naval Station Newport, Rhode Island. As noted therein, responses to comments that are related to RIDEM's formal dispute letter of October 5, 2011 are deferred until after the dispute resolution process is completed.

Please contact me at (978) 474-8449 or jim.ropp@tetrattech.com should you have any questions.

Sincerely,

James Ropp, P.E.
Project Manager

Encl: Responses to RIDEM's 9/19/2011 Comments on the Revised Draft FS (email, hardcopy)

cc: M. Montegross, NAVFAC (w/ encl. – email, hardcopy)
D. Moore, NAVSTA (w/ encl. – email, hardcopy)
G. Lombardo, EPA (w/ encl. – email, hardcopy)
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**Navy Responses to RIDEM Comments on the
Revised Draft Feasibility Study for Site 8 – NUSC Disposal Area
NAVSTA Newport, Rhode Island
December 7, 2011**

On September 19, 2011, the Rhode Island Department of Environmental Management (RIDEM) provided comments on the Revised Draft Feasibility Study (FS) for Site 8, the Naval Undersea Systems Center (NUSC) Disposal Area (Tetra Tech, July 2011) at the Naval Station (NAVSTA) Newport, Rhode Island. The Navy's responses are provided below. Responses to the remaining RIDEM comments that were deferred from the Supplemental Remedial Investigation (SRI) are also included herein.

Responses to Comments on the Revised Draft Feasibility Study

Comment 1 – Page ES-2, Table, Contaminants of Concern.

The contaminants of concern listed in this table should include the COCs listed in Table 6-6 in the NUSC SRI. Please include the following individual PAHs for soil: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

Response: Agree. Page ES-2 will be modified as requested.

Comment 2 – Page 1-34, Section 1.10.2, Selection of Chemicals of Concern for Human Health; whole section.

Although not selected as a COC in the RI/SRI, concentrations of lead in the surface and subsurface soil exceed RIDEM's risk based criteria of 150 mg/kg. In the exposed area, the maximum concentrations of lead detected were 2,870 mg/kg in the surface soil and 4,650 mg/kg in the subsurface soil. In the paved area, a concentration of 27,200 mg/kg was detected in the subsurface soil. Please include lead as a COC for surface and subsurface soil and include a discussion of lead in this section explaining how the Navy proposes to prevent exposures of lead for any receptor/exposure scenario.

Response: A response to this comment will be provided following resolution of RIDEM's formal dispute letter dated October 5, 2011. However, please note that the maximum concentration of lead detected in subsurface soil at the paved area is 159 mg/kg, not 27,200 mg/kg. The detection of 27,200 mg/kg was from stream sediment sample DA-SD100-071207.

Comment 3 – Page 2-6, Section 2.1.4.1, Chemical Specific Applicable or Relevant and Appropriate Requirements, Sediments; Whole Section.

The report notes that there are no promulgated chemical specific ARARs for sediments. As such it proposes to use federal TBC guidance to develop site specific cleanup values. Please be advised that the Site Remediation regulations are also applicable. Please modify the report to state this.

Response: A response to this comment will be provided following resolution of RIDEM's formal dispute letter dated October 5, 2011.

Comment 4 – Page 2-6, Section 2.2.1, Identification of Media of Concern; 1st bullet.

"The scenarios causing unacceptable risk include the hypothetical residential use exposures, adolescent trespasser exposure, recreational use exposure ..."

As you are aware, RIDEM Remediation Regulations require unrestricted recreational scenarios to meet Residential Standards. Please modify the above sentence to reflect this.

Response: Using the CERCLA risk assessment methodology, there is no unacceptable risk for recreational land use; however, it is acknowledged that RIDEM requires unrestricted recreational

land use to meet residential standards. The following text will be added after the referenced sentence:

“The RIDEM Remediation Regulations require unrestricted land use to meet residential standards; therefore, there is also unacceptable risk for unrestricted recreational land use.”

As discussed at the November 16, 2011 meeting, the FS will be clarified to indicate that there is no current or planned future recreational use at the site. The land use controls (LUCs) included as part of the remedial alternatives will be modified to restrict both future residential use and unrestricted recreational use.

Comment 5 – Page 2-7, Section 2.2.2, Derivation of Preliminary Remediation Goals, Human Health PRGs; whole section.

This section states that the cumulative target goal for PRGs is 10^{-5} . A review of the information provided in Table 2-4 and 2-5 indicates that this goal will not be achieved if more than one contaminant is present at the target PRG concentration. To avoid this problem and in order to meet regulatory requirements, please set the PRGs to the 10^{-6} criteria. Please ensure that any compound which exceeds RIDEM's risk based criteria was carried forth in the PRG process.

Response: Tables 2-4 and 2-5 will be revised to show Preliminary Remediation Goals (PRGs) developed using 10^{-6} risk-based levels, chemical-specific ARARs, and background levels. A response to the last sentence of this comment (regarding RIDEM's risk-based criteria) will be provided following resolution of RIDEM's formal dispute letter dated October 5, 2011.

Comment 6 – Page 2-7, Section 2.2.2, Derivation of Preliminary Remediation Goals, Human Health PRGs; Table 2-4.

The selected industrial PRG for total carcinogenic PAHs (expressed as benzo(a)pyrene equivalents) is 2.1 mg/kg, which is based on a 10^{-5} target cancer risk level. This exceeds the RIDEM Direct Exposure Criteria of 0.8 mg/kg for the industrial scenario. Please revise this table to include the RIDEM DEC of 0.8 mg/kg as the PRG for total carcinogenic PAHs

Also, please develop PRGs for each individual PAH as listed in Table 6-6 of the NUSC SRI and in Comment 1 above, which are based on a 10^{-6} target cancer risk level.

Response: The soil PRGs will be revised to address the individual polycyclic aromatic hydrocarbon (PAH) COCs [i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene], based on the lower of 10^{-6} risk levels and RIDEM's Method 1 soil objectives. RIDEM's Direct Exposure Criterion (DEC) of 0.8 mg/kg is applied to benzo(a)pyrene, not to total carcinogenic PAHs.

Comment 7 – Page 2-7, Section 2.2.2, Derivation of Preliminary Remediation Goals, Human Health PRGs; Table 2-4.

Please explain why RIDEM's leachability criteria are listed as "Not Applicable" in this table. RIDEM's leachability criteria are ARARs for this Site and must be included in this table and throughout this FS.

Response: Table 2-4 will be updated with PRGs for the individual PAH COCs and will reference the leachability criteria for the identified COCs. As summarized in the table below, the representative site COC concentrations do not exceed leachability criteria. The maximum concentrations of benzo(a)pyrene exceeded the leachability criterion at only two adjacent locations by the northwest corner of the paved area: SB110 [440 mg/kg at 8 to 10 feet below ground surface (bgs)] and TP15 (1,300 mg/kg at 2 to 3 feet bgs and 1,500 mg/kg at 5 to 6 feet bgs). TCLP/SPLP data are not available for metals in soil because TCLP/SPLP analyses are used for purposes of waste characterization and not for site characterization. Note that cadmium was not identified as a COC in groundwater.

Although chromium is a groundwater COC, it exceeded its cleanup goal in only one well at the site. Further, the chromium data in groundwater are available only as “total chromium”; chromium will not be identified as a groundwater COC if it is confirmed that it is present in the trivalent form and not the hexavalent form.

Soil COCs	HHRA 95% UCL in Soil (Table 6-2 of the SRI) mg/kg	ERA Average in Soil (Table 6-5 of the SRI) mg/kg	RIDEM GA Leachability mg/kg	RIDEM GB Leachability mg/kg
Benzo(a)anthracene	92.9	--	--	--
Benzo(a)pyrene	74.6	--	240	--
Benzo(b)fluoranthene	64.6	--	--	--
Dibenz(a,h)anthracene	16.2	--	--	--
Indeno(1,2,3-cd)pyrene	42.4	--	--	--
Arsenic	17.9	--	--	--
Cadmium	--	1.2	for TCLP/SPLP only	--
Chromium	--	16.5	for TCLP/SPLP only	--

Comment 8 – Page 2-7, Section 2.2.2 Derivation of Preliminary Remediation Goals, Human Health PRGs; 2nd paragraph.

"The RIDEM Method 1 Direct Exposure values are also included for comparison, however, the risk-based calculated values supersede them. "

The RIDEM Method 1 Direct Exposure values are ARARs for this Site. Pursuant to the NCP and CERCLA, the most conservative criteria between EPA and RIDEM must be used to determine PRGs for this Site. Please change the above sentence in the FS to reflect this and any other section of the FS and in addition please add any exceedances to RIDEM's Criteria as PRGs, including TPH.

Response: A full response to this comment will be provided following resolution of RIDEM's formal dispute letter dated October 5, 2011. Note that TPH will not be identified as a CERCLA COC; however, the soil and sediment sample locations which exceeded RIDEM's TPH criteria are co-located with areas to be addressed as part of the CERCLA action, except for one sample location (SD-B179-01 at 640 J mg/kg) which exceeded the residential criterion (500 mg/kg) but not the industrial criterion (2,500 mg/kg). The current and planned future use of the site is industrial.

Comment 9 – Page 2-7, Section 2.2.2, Derivation of Preliminary Remediation Goals, Ecological PRGs; Table 2-6.

Table 2-6 shows a PRG developed for lead in stream sediment, but not for lead in pond sediment. Please derive a PRG for lead in pond sediment and revise this table accordingly. Also, this Office does not accept the proposed stream PRG for lead (which is nine times the upper level screening criteria which typically is indicative of impacts).

Response: As shown in Table 2-6 of the FS, PRGs for pond sediment included the development of a probable effects concentration quotient (PEC-Q). Lead in pond sediment is included in the PEC-Q calculation. As discussed during the April 14, 2011 technical meeting, there was a poor relationship between lead concentrations and toxicity in the pond sediment samples; therefore, the team agreed that a lead-specific PRG would not be developed for pond sediment and that the PEC-Q would be appropriate instead.

The PRG for lead in stream sediment was developed using the site-specific toxicity test and benthic invertebrate data. This value is greater than the cited screening criteria because the lead in the

stream sediment was less toxic (based on site-specific conditions) than would be predicted from using literature-based screening levels. Therefore, the cited screening criteria are not applicable for setting PRGs.

Upon further review of the Remedial Investigation (RI) report, it is realized that lead in stream sediment should also be identified as a COC for human health (the revised draft FS only listed lead as an ecological-based COC in stream sediment). The stream sediment PRG for lead in Table 2-6 will be clarified accordingly. Human health PRGs for lead in sediment for construction workers and industrial workers calculated using EPA's adult lead model would be 1,900 mg/kg and 2,200 mg/kg, respectively. The PRG for residential exposures would be 400 mg/kg; however, the current and planned future use of the site is industrial.

Comment 10 – Page 3-10, Section 3.3.3, Containment, Impermeable Cap; Conclusion.

" ... the soil PRGs and groundwater conditions do not require mitigating COC leachability in soil. "

This statement is incorrect. Contaminants in the subsurface soil exceed RIDEM Leachability Criteria in the South Meadow. Please develop remedial alternatives to address leaching in the areas of exceedances and carry this option further in the FS process.

Response: See the response to Comment #7.

Comment 11 – Page 3-19, Section 3.4.2, Monitored Natural Attenuation; 1st bullet.

" ... natural reductive dehalogenation is occurring at the site to some degree; however, limited historical sampling events are available and more data over time would be helpful for further evaluating the effectiveness of MNA at the site. "

RIDEM anticipates the Navy to continue MNA sampling rounds on a quarterly basis in order to obtain a more robust set of groundwater data to evaluate the effectiveness of MNA for this Site. Please include the Navy's schedule for proposed MNA sampling dates in the response to comments and the total number of sampling rounds performed in 2011.

Response: During 2011, the Navy performed one monitored natural attenuation (MNA) sampling event at Site 8 (March 2011). The Navy plans to conduct additional MNA sampling rounds; however, the schedule remains to be determined. As discussed during recent meetings, the Navy is not planning to propose a MNA-only remedy for site groundwater. Instead, MNA will be used to address the residual groundwater plume following active treatment; therefore, natural attenuation of COCs will continue to be evaluated over time as part of the long-term monitoring program.

Comment 12 – Page 4-2, Section 4.1.2 Alternative S02; whole section.

Please explain why excavation would not proceed deeper than 2 feet. It would seem prudent that during a remedial action, if hot spots or sources of contamination are still found deeper than 2 feet, the removal of the sources would be continued to remove the maximum amount of contamination possible. Please add language to this section stating that if contamination is found deeper than 2 feet, the excavation would be extended.

Response: Alternative S02 is intended to facilitate continued industrial use of the site. The replacement of the top 2 feet with clean soil, and the implementation of LUCs preventing future residential use, would satisfy the requirements under the Remediation Regulations Section 8.02(A)(i)(2). Note that removal of waste anomalies may proceed deeper than 2 feet. Removal of all soil contamination would not be cost-effective given the depth of excavation that would be required and the intended future use of the site (see "Bulk Excavation" on pages 3-11 and 3-12 of the FS).

Comment 13 – Page 4-3, Section 4.1.2, Alternative S02, Component 6: LUCs and Inspections.

This paragraph of the FS report deals with land use controls. Please add the following statement to the end of this paragraph: *"The Site will be subject to both inspection and regulatory action separately or together by both the EPA and the RIDEM"*. Please note that this statement applies to all soil, groundwater and sediment alternatives which entail LUCs.

Response: Details regarding LUC language will be presented in the Land Use Control Remedial Design (LUC RD) document following the Record of Decision (ROD). As discussed during the November 16, 2011 meeting, the Navy has already negotiated a LUC RD template with EPA for use at the Navy's CERCLA sites in Region I. The existing LUC RD template does not limit inspection or regulatory action by EPA or RIDEM.

Comment 14 – Page 5-6, Section 5.1.3, Alternative GW3, Component 1: In-Situ Enhanced Bioremediation; 2nd paragraph.

This paragraph notes that as a conservative assumption a second injection would occur after 5 years. It is this Office's experience, depending upon the nature of the agent employed and the geological and hydrological conditions that a second injection is typically warranted within a time frame which ranges from months to a few years. Please change 5 years to anywhere from a few months to no greater than 2 years, or provide justification as to why such a long time frame for a second injection is proposed.

Response: Agree. The time for the second injection will be changed to "within 2 years" after the initial injection. The cost estimate also will be revised accordingly.

Comment 15 – Table 2-3, Potential Action-Specific ARARs and TBCs, Federal Regulatory Requirements; whole table.

The following requirements are missing from Federal Regulatory Requirements section of this table:

- Clean Air Act (CAA), National Emission Standards for Hazardous Air Pollutants (NESHAPS), 42 USC 7411, 7412; 40 CFR Part 61
- Resource Conservation and Recovery Act (RCRA), Subtitle C -Standards for Generators, 42 USC 6291 et seq. 40 CFR parts 262.
- Clean Water Act; General Pretreatment Regulations for Existing and New Sources of Pollution, 33 U.S.C. § 1251 et seq., 40 CFR Part 403
- Safe Drinking Water Act Maximum Contaminant Levels (MCLs), 40 CFR 141.11 – 141.16
- Resource Conservation and Recovery Act (RCRA) Regulations, Standards for Identification and Listing of Hazardous Waste, 40 Code of Federal Regulations (CFR) 261, Subparts A, S, C and D
- RCRA Regulations, Standards for Generators of Hazardous Waste, 40 CFR 262, Subparts A, S, C and D
- RCRA Regulations, Standards Applicable to Transporters of Hazardous Waste, 40 CFR 263 Disagree.
- RCRA Regulations, Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal (TSD) Facilities, 40 CFR 264
- RCRA Regulations, Use and Management of Containers, 40 CFR 264, Subpart I
- RCRA Regulations, Land Disposal Restrictions (LDRs), 40 CFR 268

Please add these requirements as Potential Action-Specific ARARs and TBCs.

Response:

- **NESHAPS – Disagree.** NESHAPS are not ARARs for this cleanup. NESHAPS are promulgated for emissions of particular air pollutants from specific sources. Per EPA's "CERCLA Compliance with Other Laws Manual: Part II - Clean Air Act and Other Environmental Statutes and State Requirements", NESHAPS are not generally applicable to Superfund remedial activities because CERCLA sites do not usually contain one of the

specific source categories regulated. EPA's guidance also noted that "NESHAPs as a whole are generally not relevant and appropriate because the standards of control are intended for the specific type of source regulated and not all sources of that pollutant." Part of a NESHAP may be relevant and appropriate to a CERCLA site, but only if it involves the specific source category regulated by the NESHAP.

- RCRA, Subtitle C - 40 CFR parts 262 – Disagree. Rhode Island is a RCRA-authorized state; therefore, only Rhode Island regulations will be cited.
- CWA Pretreatment Regulations – Agree. This will be included, although it is noted that Rhode Island has NPDES authority.
- SDWA MCLs – Agree.
- RCRA, 40 CFR 261, Subparts A, S, C and D – Disagree. Rhode Island is a RCRA authorized state; therefore, only Rhode Island regulations will be cited.
- RCRA, 40 CFR 262, Subparts A, S, C and D – Disagree. Rhode Island is a RCRA authorized state; therefore, only Rhode Island regulations will be cited.
- RCRA, 40 CFR 263 – Disagree. These are for off-site activities and are applicable in any case. Therefore, they are excluded from the ARAR analysis.
- RCRA, 40 CFR 264 – Disagree. These are for off-site activities and are applicable in any case. Therefore, they are excluded from the ARAR analysis.
- RCRA, 40 CFR 264, Subpart I – Disagree. The need for containers for hazardous waste has not been determined. Hazardous waste, if generated, would not be kept on-site for more than 90 days and would be managed according to the generator requirements.
- RCRA, 40 CFR 268 – Disagree. These are for off-site activities and are applicable in any case. Therefore, they are excluded from the ARAR analysis.

Comment 16 – Table 2-3, Potential Action-Specific ARARs and TBCs, State Regulatory Requirements; whole table.

The following requirements are missing from the State Regulatory Requirements section of this table:

- Clean Air Act -Emissions Detrimental to Persons or Property, RIGL 23-23 et seq; CRIR 12-31-07
- Hazardous Waste Management Standards for Generators, RIGL 23.19.1 et seq.; CRIR 12-030-003 Part 5
- Rhode Island Solid Waste Regulations, DEM OWM-SW04-01, 1.7.10
- Rhode Island Solid Waste Regulations, DEM OWM-SW04-01, 1.7.12 (a)
- Rhode Island Solid Waste Regulations, DEM-OWM-SW04-01, 2.1.04
- Rhode Island Solid Waste Regulations, DEM-OWM-SW04-01, 2.1.08 (c)
- Rhode Island Solid Waste Regulations, DEM-OWM-SW04-01, 2.3.05
- Rhode Island Solid Waste Regulations, DEM-OWM-SW04-01, 2.3.11
- Rhode Island Solid Waste Regulations, DEM-OWM-SW04-01, 2.3.14
- Rhode Island Solid Waste Regulations, DEM-OWM-SW04-01, 2.3.23
- Pretreatment Regulations, RIGL 46-12, 42-17.1, 42-45
- Environmental Land Use Restrictions, State of Rhode Island Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases. 8.09 Institutional Controls
- Standards Applicable to Transporters of Hazardous Waste, Rules and Regulations for Hazardous Waste Management, Section 6.00
- Standards for Owners and Operators of Hazardous Waste TSD Facilities, Rules and Regulations for Hazardous Waste Management, Section 7.00 through 10.00
- LDRs, Rules and Regulations for Hazardous Waste Management, Section 10.00
- Rhode Island Oil Pollution Control Regulations

Please add these requirements as Potential Action-Specific ARARs and TBCs.

Response:

- CAA, RIGL 23-23 et seq; CRIR 12-31-07 – Agree.
- RIGL 23.19.1 et seq.; CRIR 12-030-003 Part 5 – This is already included in Table 2-3.

- DEM OWM-SW04-01, 1.7.10 – Agree (for dust control).
- DEM OWM-SW04-01, 1.7.12 (a) – Agree (for health and safety).
- DEM-OWM-SW04-01, 2.1.04 – Agree (for erosion and sediment control).
- DEM-OWM-SW04-01, 2.1.08 (c) – Agree (for monitoring); however, this will be moved to the groundwater alternative ARAR tables.
- DEM-OWM-SW04-01, 2.3.05 – Agree (for compliance boundary).
- DEM-OWM-SW04-01, 2.3.11 – Agree (for monitoring wells); however, this will be moved to the groundwater alternative ARAR tables.
- DEM-OWM-SW04-01, 2.3.14 – Agree, regarding wetlands but not for floodplains because the site is not located within a floodplain.
- DEM-OWM-SW04-01, 2.3.23 – Agree.
- RIGL 46-12, 42-17.1, 42-45 – Agree.
- Environmental Land Use Restrictions (ELURs) – Disagree. ELURs will be handled through LUCs and the LUC RD.
- Transporters of Hazardous Waste – Disagree. These are for off-site activities and are applicable in any case. They are excluded from the ARAR analysis.
- Hazardous Waste TSD Facilities – Disagree. These are for off-site activities and are applicable in any case. They are excluded from the ARAR analysis.
- LDRs – Disagree. These are for off-site activities and are applicable in any case. They are excluded from the ARAR analysis.
- Oil Pollution Control – Disagree. Petroleum contamination is not addressed under CERCLA.

Comment 17 – Table 2-3, Potential Action-Specific ARARs and TBCs, page 3; Citation DEM OWM-SW04-01, 1.7.14(b).

"The site will be closed under a plan developed in accordance with CERCLA. As such, the closure requirements of the site will be documented in the ROD, the remedial design (RD), and the Operations and Maintenance Plan (O&M) (including a monitoring plan). If wastes are left in place as a waste management unit, compliance with the State closure requirements contained in the ROD, RD, and O&M plan will be deemed compliance with this ARAR."

Please delete this entire statement above and replace it with the following text: *"An approved closure plan will be submitted and implemented for the Site."*

Response: The text will be modified to match the agreed upon language used in the ROD for the Old Fire Fighting Training Area (OFFTA). The text will read as follows:

"The site will be closed under a plan developed in accordance with the substantive requirements of this section of the regulations, to be incorporated into the remedial design (RD) and the Operations and Maintenance Plan (O&M) (including a monitoring plan)."

Comment 18 – Table 2-3, Potential Action-Specific ARARs and TBCs, page 4; Citation DEM OWM-SW04-01, 1.8.01(a) and 1.8.01(b).

"This ARAR is cited to memorialize the requirements to monitor groundwater and to meet closure requirements under a waste management unit, if it is established. If contaminants are left in place, the site will be closed as a waste management unit, and undergo long term monitoring. The remedial design (RD), remedial action work plan (RAWP), operations and monitoring plan (O&M) (including the long term monitoring plan (LTMP)) developed for this cleanup will contain the specific monitoring and closure requirements for the waste management unit. These requirements may differ from those cited in this regulation for landfill purposes. Compliance with the groundwater monitoring and closure requirements contained in the LTMP, RD, RAWP, and O&M plan for this site will be deemed compliance with this ARAR."

The above text is inconsistent with language that the State has seen at any other CERCLA Sites in Rhode Island in regards to the State's ARARs. Please delete the 3rd, 4th, and 5th sentences as underlined above as we disagree with the validity of these sentences.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met by monitoring groundwater and meeting closure requirements. If contaminants are left in place, the site will be closed as a waste management unit, and undergo long term monitoring. The remedial design (RD), remedial action work plan (RAWP), operations and monitoring plan (O&M) (including the long term monitoring plan [LTMP]) developed for this cleanup will contain the specific monitoring and closure requirements for the waste management unit that will comply with the substantive requirements.”

Comment 19 – Table 2-3, Potential Action-Specific ARARs and TBCs, page 4; Citation DEM OWM-SW04-01, 2.1.08 (a) (8).

“It is intended that this subsection serve as the ARAR memorializing the requirements for construction of new monitoring wells if needed. The specific construction requirements will be described in the appropriate documents. Such requirements may differ from those cited in this regulation, and will be developed to be appropriate for this site. Compliance with the monitoring well construction requirements of the LTMP will be deemed compliance with this ARAR.”

Please delete the 2nd, 3rd, and 4th sentences, and the following text in the 1st sentence: “subsection serve as the”, and change “memorializing” to “memorialize” as underlined above. We disagree strongly with these statements and deem them inaccurate.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met for construction of new monitoring wells.”

Comment 20 – Table 2-3, Potential Action-Specific ARARs and TUCs, page 5; Citation DEM OWM-SW04-01, 2.2.12 (d) (1) and 2.2.12(d) (2) (ii) (iii) and (v).

“Remedies including cover systems may include appropriate vegetation requirements of a soil cover.”
Please replace the word “may” with “shall” in the above sentence.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“Remedies including cover systems will include appropriate vegetation requirements of a soil cover in compliance with these standards.”

Comment 21 – Table 2-3, Potential Action-Specific ARARs and TBCs, page 5; Citation DEM OWM-SW04-01, 2.3.04(e), (f).

“The ROD will include provisions to maintain cover systems, and to assure that cover provides adequate levels of reduced permeability for specific areas cited by RIDEM. It is intended that this subsection serve as the ARAR memorializing the requirement to have and maintain a cover with appropriate permeability limitations, and not to identify permeability requirements.”

Please delete this entire statement and replace with the following text: “If remedial actions involve a cover system, than the requirements of this rule would be followed.”

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met by installing an asphalt cover that has been determined to provide an adequate barrier for specific areas to be used for storage, or a soil cover that has been determined to provide an adequate barrier for the remainder of the land within the site.”

Comment 22 – Table 2-3, Potential Action-Specific ARARs and TBCs, page 5; Citation DEM OWM-SW04-01, 2.3.10.

"It is intended that this subsection serve as the ARAR memorializing the requirement that appropriate surface drainage considerations must be developed for the WMA cover. Cover systems would be signed to prevent erosion, sedimentation, and standing water on the cover. Minimum slope requirements for solid waste landfills would not be relevant or appropriate for a soil cover which is not intended to reduce infiltration."

Please delete the last sentence and the following text in the 1st sentence; "subsection serve as the", and change "memorializing" to "memorialize" as underlined above.

Response: See the response to Comment #7. The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met through design of appropriate surface drainage considerations for the cover. The cover system would be designed to prevent erosion, sedimentation, and standing water on the cover. Minimum slope requirements for solid waste landfills have been determined not relevant or appropriate for a soil cover which is not intended to reduce infiltration.”

Comment 23 – Table 2-4, Preliminary Remediation Goals for Soil.

Please explain why the selected PRGs for benzo(a)pyrene (2.1 mg/kg) and Arsenic (18 mg/kg) are the highest risk level values listed from this table instead of the CERCLA requirement of using the most stringent contained in an ARAR.

Response: The PRGs for PAHs will be revised, as described in the response to Comment #5. The PRG for arsenic should not be set below background levels (see also the response to the SRI Comment #3 below).

Comment 24 – Table 2-6, PRGs for Sediment Invertebrates.

Please explain the PEC-Q with a DDE unit less value and how it will be applied. Please add this explanation to Table 2-6.

Response: The calculation of the PEC-Q with DDE was presented in Section 6.4.3.2 of the RI report for Site 8. A footnote will be added to Table 2-6 to explain this calculation. The calculation is as follows:

1. Calculate the PEC-Q for the following parameters by dividing the chemical concentration in a sample by its PEC:
 - Total PAHs
 - Total PCBs
 - DDE
 - Individual metals (arsenic, cadmium, chromium, copper, lead, nickel, and zinc)
2. Average the 10 PEC-Qs listed above to generate an overall, mean PEC-Q.

Because the chemical concentration is divided by a PEC, the units cancel.

Comment 25 – Table 4-6, Action Specific ARAR and TBCs.

Please refer to Comment 16 mentioned above.

Response: See the response to Comment #16.

Comment 26 – Table 4-6, Action-Specific ARARs and TBCs, Soil Alternative S02, page 2; Citation SW04-01,1.7.14(b).

Please refer to Comment 17 mentioned above.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The site will be closed under a plan developed in accordance with the substantive requirements of this section of the regulations, to be incorporated into the remedial design (RD) and the Operations and Maintenance Plan (O&M) (including a monitoring plan). Contaminated soil beneath the Paved Storage Area will be left in place as a waste management unit (WMU).”

Comment 27 – Table 4-6, Action-Specific ARARs and TBCs, Soil Alternative S02, page 3; Citation DEM OWM-SW04-01, 1.8.01(a) and 1.8.01(b).

Please refer to Comment 18 mentioned above.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met by monitoring groundwater and meeting closure requirements For contaminants left in place, the site will be closed as a waste management unit, and undergo long term monitoring. The remedial design (RD), remedial action work plan (RAWP), operations and monitoring plan (O&M) (including the long term monitoring plan [LTMP]) developed for this cleanup will contain the specific monitoring and closure requirements for the waste management unit that will comply with the substantive requirements.”

Comment 28 – Table 4-6, Action-Specific ARARs and TBCs, Soil Alternative S02, page 4; Citation DEM OWM-SW04-01, 2.1.08 (a) (8).

Please refer to Comment 19 mentioned above.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met for construction of new monitoring wells.”

Comment 29 – Table 4-6, Action-Specific ARARs and TBCs, Soil Alternative S02, page 4; Citation DEM OWM-SW04-01, 2.3.04(e), (f).

Please refer to Comment 21 mentioned above.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met by maintaining the asphalt cover that has been determined to provide an adequate barrier for specific areas to be used for storage (Paved Storage Area), or a soil cover that has been determined to provide an adequate barrier for the remainder of the land within the site.”

Comment 30 – Table 4-6, Action-Specific ARARs and TBCs, Soil Alternative S02, page 5; Citation DEM OWM-SW04-01, 2.3.10.

Please refer to Comment 22 mentioned above.

Response: See the response to Comment #7. The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met through design of appropriate surface drainage considerations for the cover. The cover system would be designed to prevent erosion, sedimentation, and standing water on the cover. Minimum slope requirements for solid waste landfills have been determined not relevant or appropriate for a soil cover which is not intended to reduce infiltration.”

Comment 31 – Table 4-9, Action-Specific ARARs and TBCs, Soil Alternative S03, page 2; Citation SW04-01, 1.7.14(b).

Please refer to Comment 17 mentioned above.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The site will be closed under a plan developed in accordance with the substantive requirements of this section of the regulations, to be incorporated into the remedial design (RD) and the Operations and Maintenance Plan (O&M) (including a monitoring plan). Contaminated soil beneath the Paved Storage Area will be left in place as a waste management unit (WMU).”

Comment 32 – Table 4-9, Action-Specific ARARs and TBCs, Soil Alternative S03, page 3; Citation DEM OWM-SW04-01, 1.8.01(a) and 1.8.01(b).

Please refer to Comment 18 mentioned above.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met by monitoring groundwater and meeting closure requirements. For contaminants left in place, the site will be closed as a waste management unit, and undergo long term monitoring. The remedial design (RD), remedial action work plan (RAWP), operations and monitoring plan (O&M) (including the long term monitoring plan [LTMP]) developed for this cleanup will contain the specific monitoring and closure requirements for the waste management unit that will comply with the substantive requirements.”

Comment 33 – Table 4-9, Action-Specific ARARs and TOCs, Soil Alternative S03, page 4; Citation DEM OWM-SW04-01, 2.1.08 (a) (8).

Please refer to Comment 19 mentioned above.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met for construction of new monitoring wells.”

Comment 34 – Table 4-9, Action-Specific ARARs and TBCs, Soil Alternative S03, page 4; Citation DEM OWM-SW04-01, 2.2.12 (d) (I) and 2.2.12(d) (2) (ii) (iii) and (v).

Please refer to Comment 20 mentioned above.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“Remedies including cover systems will include appropriate vegetation requirements of a soil cover in compliance with these standards.”

Comment 35 – Table 4-9, Action-Specific ARARs and TBCs, Soil Alternative S03, page 5; Citation DEM OWM-SW04-01, 2.3.04(e), (f).

Please refer to Comment 21 mentioned above.

Response: The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met by maintaining the asphalt cover that has been determined to provide an adequate barrier for specific areas to be used for storage (Paved Storage Area), or a soil cover that has been determined to provide an adequate barrier for the remainder of the land within the site.”

Comment 36 – Table 4-9, Action-Specific ARARs and TBCs, Soil Alternative S03, page 5; Citation DEM OWM-SW04-01, 2.3.10.

Please refer to Comment 22 mentioned above.

Response: See the response to Comment #7. The text will be modified to match the agreed upon language used in the OFFTA ROD. The text will read as follows:

“The substantive requirements of this section of the regulations will be met through design of appropriate surface drainage considerations for the cover. The cover system would be designed to prevent erosion, sedimentation, and standing water on the cover. Minimum slope requirements for solid waste landfills have been determined not relevant or appropriate for a soil cover which is not intended to reduce infiltration.”

Responses to Comments Deferred from the Supplemental Remedial Investigation

On May 31, 2011, the Navy issued the draft final SRI for Site 8 and RIDEM provided comments on June 16, 2011. The Navy provided responses on July 13, 2011 and RIDEM provided additional comments on August 3, 2011. On September 21, 2011, it was agreed to defer these remaining two comments to the FS so that the SRI could be finalized. The comment numbers used below refer to the numbering used in the June 16, 2011 letter.

Comment 3 – Based on similarities in concentrations of arsenic found in type Se soil for both surface and subsurface soils at the Site (as shown below), please include arsenic as a COC for subsurface soil as well as surface soil for type Se soil. Since the Feasibility Study has already been issued, please provide any revised pages necessary to this document.

Four highest arsenic concentrations in surface soil:

Concentration (mg/kg)	Sample location	Area	Soil Type	Depth (ft)	Exposed/ Unexposed	RI/SRI	Date
90	TP-13	north meadow	PmB	0-1	exposed	RI	8/15/03
45.8	SB-118	paved gated storage area	Se	0-2	exposed	RI	3/4/08
41 J	SB-04	paved gated storage area	Se	1-2	paved	RI	8/18/03
32.7	SB-150	paved gated storage area	Se	0-2	paved	RI	3/5/08

Four highest arsenic concentrations in subsurface soil:

Concentration (mg/kg)	Sample location	Area	Soil Type	Depth (ft)	Exposed/ Unexposed	RI/SRI	Date
122	SB-113	paved open storage area	Se	4-6	paved	RI	3/3/08
40	TP-13	north meadow	PmB	2-3	exposed	RI	8/15/03
35	SB-03	paved gated storage area	Se	3-4	exposed	RI	8/19/03
33	SB-05	paved open storage area	Se	2-3	paved	RI	8/19/03

In regards to the soil type, please refer to the attached¹ Figure 1-6 from the NUSC RI of the fill areas determined from aerial photos. RIDEM does not agree with classification of the soil as type Se for the majority of the Site since much of this area contains fill material. Please be advised that RIDEM, to date, has not accepted the "Basewide Background Study Report". Levels of arsenic in the 30-40 mg/kg range area not acceptable background levels.

Response: The cited similarities in the highest arsenic concentrations do not change the conclusions of the statistical comparisons using the whole datasets. The statistical analyses included a mean/median comparison and an upper tail comparison to determine that the overall distributions of arsenic concentrations are similar in subsurface soil and background soil (see Appendix F of the 2010 RI).

As discussed during previous investigations, the Navy believes that the elevated arsenic concentrations in soil on Aquidneck Island are a background condition. Note that Table 6-2 of the SRI cites a Se soil background level of 23.2 mg/kg based on the 95 percent upper confidence limit (95%UCL), and in the revised draft Feasibility Study (FS), a background value of 18 mg/kg was used for the development of the arsenic PRG. The value of 18 mg/kg was based on the Upper Prediction Limit (UPL) of arsenic in surface soil.

The remedial alternatives for soil developed in the FS will address risks associated with arsenic in soil through excavation and/or capping. Alternative SO2 includes excavation of the top 2 feet of soil across much of the site. Of sample locations cited by RIDEM above, the two highest surface soil concentrations (TP-13 and SB-118) would be removed and exposure to the remaining locations in surface and subsurface soil would be prevented by the 2 feet of clean backfill, the site pavement, and the LUCs. Similarly, capping under Alternative SO3 would prevent contact with arsenic in

¹ The figure is not reproduced in this response document.

surface and subsurface soil. Two feet of clean soil is consistent with the industrial use standards under Section 8.02(A)(i)(2) and Section 12.04 of the Remediation Regulations.

The 2006 Background Soil Investigation Report, the 2008 Basewide Background Study Report, and the 2010 RI are final documents and will continue to be used accordingly. Although disturbed areas at Site 8 have been inferred as shown in Figure 1-6 of the RI, the soil classifications for Site 8 are based on the U.S. Department of Agriculture's Soil Conservation Survey of Rhode Island and have been used throughout the Site 8 investigation.

Comment 4 – As stated in the previous comment, RIDEM does not accept the levels of arsenic documented in the background study. PRGs should also be developed for individual PAHs based on 1×10^{-6} risk level for each contaminant. Please be advised that any contaminant that exceeded a risk level of 1×10^{-6} in the RI or the SRI must be carried forth into the FS.

Response: A full response to this comment will be provided following resolution of RIDEM's formal dispute letter dated October 5, 2011. Regarding the arsenic PRG, see the previous response above. Regarding the PRG for PAHs, see the response to Comment #6.